

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave.St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-011273**Date Inspected:** 02-Jan-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 645**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1845**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Liu Fawen**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girder (OBG) Components**Summary of Items Observed:**

On this date Caltrans Office of Structural Materials Quality Assurance Inspector, Sandeep Kumar (QA) was present during the times noted above for observations relative to the work being performed.

**BAY 2**

The following Non Destructive Testing (NDT) inspection carried out as per the ZPMC submitted Notification No. 004982

**Magnetic Particle Testing (MT)**

This QA inspector performed MT of approximately 15% of the area previously tested and accepted by ZPMC Quality Control personnel. This QA Inspector generated an MT report for this date. The members are identified as OBG Components. The weld designations reviewed are as follows:

1. LD003-061-001~012
2. LD002-050-001~012
3. LD008-006-001~012
4. LD001-050-001~012
5. LD009-012-001~012
6. LD003-062-001~012
7. LD004-061-001~012
8. LD004-062-001~012

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### BAY 3

The following Non Destructive Testing (NDT) inspection carried out as per the ZPMC submitted Notification No. 004979

#### Magnetic Particle Testing (MT)

This QA inspector performed MT of approximately 15% of the area previously tested and accepted by ZPMC Quality Control personnel. This QA Inspector generated an MT report for this date. The members are identified as OBG Components. The weld designations reviewed are as follows:

1. CA090-019~024; 101; 102 – Green Tag # 11946
2. CA090-031~036; 103; 104 – Green Tag # 11947
3. CA090-043~048; 105; 106 – Green Tag # 11948
4. CA090-055~060; 107; 108 – Green Tag # 11949
5. CA090-067~072; 109; 110 – Green Tag # 11950
6. CA090-080~084; 111; 112 – Green Tag # 11951
7. CA094-015~020; 065; 066 – Green Tag # 11956
8. CA094-027~032; 067; 068 – Green Tag # 11957
9. CA094-051~056; 071; 072 – Green Tag # 11959
10. CA094-039~044; 069; 070 – Green Tag # 11958
11. CA093-051~056; 071; 072 – Green Tag # 11955
12. CA093-015~020; 065; 066 – Green Tag # 11952
13. CA093-027~032; 067; 068 – Green Tag # 11953
14. CA093-039~044; 069; 070 – Green Tag # 11954

This QA Inspector observed the following work in progress:

#### Flux Core Arc Welding (FCAW):

Weld joint # 058 located on Floor Beam FB204 – 043. Welder is identified as 206623. ZPMC Quality Control (QC) Inspector is identified as Guo Yuan Ting. The welding variables recorded by QC appeared to comply with the WPS – B – T – 2232 – Tc – U4b – F – 1.

Weld joint # 038 located on Corner Assembly CA6501C. Welder is identified as 044830. ZPMC Quality Control (QC) Inspector is identified as Guo Yuan Ting. The welding variables recorded by QC appeared to comply with the WPS – B – T – 2132 – 3.

Weld joint # 030 located on Floor Beam FB205 – 044. Welder is identified as 204338. ZPMC Quality Control (QC) Inspector is identified as Guo Yuan Ting. The welding variables recorded by QC appeared to comply with the WPS – B – T – 2233 – B – U2a – F.

Weld joint # 063 located on Corner Assembly CA3001F. Welder is identified as 044830. ZPMC Quality Control (QC) Inspector is identified as Guo Yuan Ting. The welding variables recorded by QC appeared to comply with the WPS – B – T – 2232 – Tc – U4b – F.

### BAY 5

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The following Non Destructive Testing (NDT) inspection carried out as per the ZPMC submitted Notification No. 004981

### Magnetic Particle Testing (MT)

This QA inspector performed MT of approximately 15% of the area previously tested and accepted by ZPMC Quality Control personnel. This QA Inspector generated an MT report for this date. The members are identified as OBG Components. The weld designations reviewed are as follows:

1. BK001-032- 010; 011; 046
2. BK001-033-008; 010; 011; 046 – Green Tag # 11116
3. BK001-034-008; 010; 011; 046 – Green Tag # 11117
4. BK001-035-008; 010; 011; 046 – Green Tag # 11118
5. BK001-036-008; 010; 011; 046 – Green Tag # 11119

### Ultrasonic Testing (UT)

This QA inspector performed UT of approximately 10% of the area previously tested and accepted by ZPMC Quality Control personnel. This QA Inspector generated an UT report for this date. The members are identified as OBG Components. The weld designations reviewed are as follows:

1. 10TR2-020-014
2. BK001-031-008; 010; 011; 046– Green Tag # 11114

This QA Inspector observed the following work in progress:

### Flux Core Arc Welding (FCAW):

Weld joint # 010 located on Bike Path BK001 – 050. Welder is identified as 067275. ZPMC Quality Control (QC) Inspector is identified as Zhong Chong Biao. The welding variables recorded by QC appeared to comply with the WPS – B – T – 2231 – Tc – P4 – F.

Weld joint # 010 located on Bike Path BK001 – 048. Welder is identified as 069895. ZPMC Quality Control (QC) Inspector is identified as Zhong Chong Biao. The welding variables recorded by QC appeared to comply with the WPS – B – T – 2231 – Tc – P4 – F.

Weld joint # 010 located on Bike Path BK001 – 049. Welder is identified as 204342. ZPMC Quality Control (QC) Inspector is identified as Zhong Chong Biao. The welding variables recorded by QC appeared to comply with the WPS – B – T – 2231 – Tc – P4 – F.

This QA Inspector observed the following work not in compliance:

During Magnetic Particle Testing (MT) review of welds on Bike Path Cantilever Beams, this Quality Assurance Inspector (QA) discovered the following issues:

- One (1) transverse linear indication measuring approximately 8mm in length.
- The member is identified as Bike Path Cantilever Beam BK001-032.
- The weld is identified as BK001-032-008.
- The weld is a Partial Joint Penetration (PJP) Corner-joint joining the Web Plate (BKX4A) to the Diaphragm Flange Plate (BKX3C).
- The member is Non-Seismic Performance critical Member (SPCM).
- The member is located in OBG Bay 5.

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The Notice of Witness Inspection Number (NWIT) is 004981. The indication is located inside the area that has been previously tested and accepted by ZPMC Quality Control (QC) personnel. As per the contract documents, ZPMC's QC personnel are required to perform 100% MT inspection of this weld.

### Applicable reference:

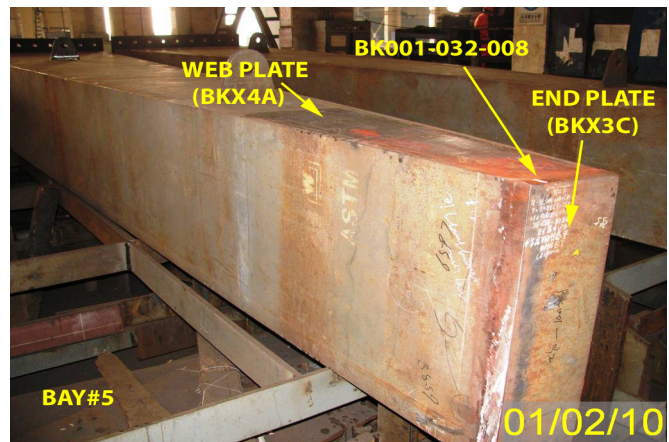
Special Provisions Section 8.3 – “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

AWS D1.5 (02) Section 6.26.2 – “Welds that are subject to MT in addition to visual inspection shall have no cracks.

This QA notified ZPMC QC identified as Mr. Zhong Chong Biao and ABF inspector identified as Mr. Wang Wen Bin of the above issue and that an incident report will be generated.

See attached photos:

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.



### Summary of Conversations:

No Relevant Conversations.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang - 15000422372, who represents the Office of Structural Materials for your project.

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**Inspected By:** Kumar, Sandeep

Quality Assurance Inspector

**Reviewed By:** Hall, Steven

QA Reviewer

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